AGENCY: U.S. Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE) has prepared an Environmental Assessment (EA), DOE/EA-1135 for the offsite treatment of low-level mixed waste. Based on the evaluation in the EA, and considering comments from members of the public, DOE has determined that the proposed action is not a major federal action significantly affecting the quality of the human environment, within the meaning of the National *Environmental Policy Act of 1969* (NEPA). Therefore, the preparation of an Environmental Impact Statement (EIS) is not required.

ADDRESSES AND FURTHER INFORMATION:

Single Copies of the EA and further information about the proposed action are available from:

H. E. Bilson, Director
Waste Programs Division
U.S. Department of Energy
Richland Operations Office
P. O. Box 550 S7-41
Richland, Washington 99352
(509) 376-1366

For further information regarding the DOE NEPA Process, contact:

Carol M. Borgstrom, Director
Office of NEPA Oversight
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585
(202) 586-4600 or (800) 472-2756

PURPOSE AND NEED: The U.S. Department of Energy (DOE) needs to demonstrate the economics and feasibility of offsite commercial treatment of contact-handled low-level mixed waste (LLMW), containing polychlorinated biphenyls (PCBs) and other organics, to meet existing regulatory standards for eventual disposal.

BACKGROUND: Radioactive and hazardous waste stored at the Hanford Site includes contact handled low-level mixed waste (LLMW) which is made up of both radioactive and hazardous constituents. This LLMW is either generated onsite or received from other Department of Defense or DOE sites. Some of this LLMW contains organic constituents such as solvents and PCBs that require thermal treatment to meet regulatory standards for disposal. Thermal treatment would also result in waste volume reduction and provide a stable form for disposal.

The contact handled LLMW is stored in containers in the 200 West Area. Approximately 810 m^3 (1,059 yd^3) of such waste has accumulated and an additional 4,310 m^3 (5,637 yd^3) is expected to be added by 2010. This waste was generated at the Hanford Site or received from other Department of Defense/DOE Sites.

Allied Technology Group, Inc. (ATG), a private company, was selected competitively from three proposals responding to a DOE Request for Proposals for thermal treatment of LLMW. Environmental consequences of siting, construction and operation of the proposed ATG thermal treatment facility on private land in the City of Richland was considered in the City's State Environmental Policy Act (SEPA) Final Environmental Impact Statement (EIS) (EA6-97) - Allied Technology Group, Inc. - Treatment of Low Level Mixed Waste.

Sending DOE waste to offsite treatment facilities is expected to cost much less than construction of a treatment facility at Hanford since DOE would pay only for offsite treatment and transportation rather than the full cost of facility construction, operation, and decommissioning. If the demonstration of treatment is successful, the expected total amount of waste may be treated at the selected facility.

PROPOSED ACTION: The DOE proposes to retrieve, package and transport up to 5,120 m^3 (6,696 yd^3) of contact-handled LLMW from the Hanford Site to the ATG gasification and vitrification facility in Richland, Washington, for treatment, and to return the treated waste to the Hanford Site for eventual disposal. These activities would occur over a ten-year period.

Untreated waste is and will be stored in the Hanford Site's 200 West Area, approximately 33 km (20 mi) northwest of the ATG facility. Waste containers would be removed from storage in the 200 West Area, repackaged as necessary, and transported by truck to the ATG facility in conformance with all applicable requirements. Following acceptance and classification by ATG, wastes may be stored awaiting their turn in the treatment facility. Wastes may be pretreated including sorting and size reduction before treatment.

Treatment in the ATG gasification and vitrification system would: 1) destroy toxic and non-toxic organics;

2) reduce the waste volume; and 3) vitrify the inert and radioactive residues. The system by-product is a fuel gas, referred to as synthesis gas or "syngas," that is treated and converted to a stable form, water and carbon dioxide before being discharged to the atmosphere. The two processes, gasification and vitrification, would occur simultaneously.

The resulting low-level waste form would be a leach resistant vitrified product consisting of inert wastes (metals and minerals) including most of the radioactivity in the original waste. Secondary wastes, including those arising from the packaging or pretreatment, would be packaged and certified before being transported to the 200 West Area. DOE waste from the Hanford Site and commercial waste would be kept separate by treating in separate campaigns.

All treated DOE waste, including secondary waste, would be packaged and transported from the ATG facility back to the Hanford Site's 200 West Area. The treated waste would be either temporarily stored at the Central Waste Complex or placed in the 200 Area mixed waste disposal trenches.

ALTERNATIVES CONSIDERED:

No-Action: Under the No-Action Alternative, LLMW would continue to accumulate at the 200 West Area pending future decisions. Life-cycle costs for the long-term storage of the untreated waste would be greater than for near-term waste treatment and disposal.

Alternatives Not Analyzed in Detail: The following alternatives were considered in the contractor selection process and in preparation of this EA. These alternatives were not analyzed in detail in this EA. Use of the Umatilla Ordinance Depot incinerator was not considered as a reasonable treatment option because the incinerator was not designed to treat radioactive waste. It was designed for the destruction of chemical weapons.

Treatment at the Waste Experimental Reduction Facility (WERF), Idaho: Under this alternative DOE would send the waste for treatment to the existing WERF at Idaho National Environmental Engineering Laboratory (INEEL), Idaho Falls, Idaho, approximately 800 km (500 mi) from the 200 West Area. The treated waste would be returned to the Hanford Site for eventual disposal. Approximately 82 percent of the Hanford LLMW generated between 1993 and 1995 from onsite and offsite generators would not be treatable at WERF because the facility's waste acceptance criteria preclude numerous items from being incinerated, such as Toxic Substances Control Act regulated waste and waste with more than 0.1 nCi/g of alpha-emitting radionuclides.

Treatment at INEEL Waste Treatment Facility, Idaho: Under this alternative DOE would send the waste for treatment to the Waste Treatment Facility which is being constructed at INEEL. The facility cannot presently accept Hanford LLMW, and would need to be modified and permitted to accept and treat the Hanford LLMW.

Treatment at Scientific Ecology Group (SEG), Tennessee: Under this alternative DOE would send the waste for treatment to SEG's incineration facility in Oak Ridge, Tennessee.

Treatment in a Hanford Site Facility: Under this alternative DOE would treat the waste in a Hanford Site facility, either existing or to be built. No existing facility was found to be suitable. A new onsite facility dedicated to treatment of this waste stream would entail higher capital cost per unit of waste to be treated than any of the other treatment alternatives.

ENVIRONMENTAL IMPACTS: No soil or habitat disturbances would occur in the implementation of this proposed action. Small gaseous, particulate, or thermal discharges from trucks, fork lifts, and other equipment would be generated during routine operations. It is expected that there would be no adverse effects on cultural resources from the proposed action. In addition, no Federal or State-listed, proposed, candidate, threatened, or endangered species are expected to be affected.

Air Quality: Anticipated facility emissions and maximum expected pollutant concentrations down wind of the proposed ATG facility do not exceed applicable State or Federal air quality standards or ambient concentration guidelines.

Radiation Impacts: No impacts from radiation are expected from normal safe operations. The radiological dose to workers from incident free transportation from the 200 West Area to ATG is calculated to be 0.025 person-rem/year, with an estimated 10 year cumulative Latent Cancer Fatality (LCF) rate of 1.0×10^{-4}. The dose to the public from this transportation is calculated to be 0.0098 person-rem/year, with an estimated 10 year cumulative LCF of 4.9×10^{-5}. Transportation of the treated waste back to 200 West Area is calculated to result in 0.023 person-rem/year and a 10 year cumulative LCF of and 9.4×10^{-5} to workers, with 0.0092 person-rem/year and a 10 year cumulative LCF of 4.6×10^{-5}.

The collective dose to the workforce from 10 years of operation would be 15 person-rem with an LCF risk of 0.006. The 10 year cumulative radiological dose from treatment operations to the offsite population within 80 km (50 mi) of the ATG facility is calculated to be 0.0095 person-rem/year with a 10 year cumulative LCF of 0.000047.

Hazardous Material Impacts: Calculated health impacts from the hazardous constituents of the Hanford LLMW corresponded to excess cumulative cancer risks of less than 1.0×10^{-6} for both residential and worker scenarios. The highest excess cumulative cancer risk was found for worker exposure to acetaldehyde (1.34×10^{-7}).

Accidents: Transportation. The 10 year cumulative population dose and health effects for non-workers from accidents over the 10-year operating period are 2.0×10^{-1} person-rem and 6.8×10^{-9} LCF considering accident probability for both inbound and outbound transport.

Processing: The worst case credible accident was identified as a fire in the waste storage area of the ATG facility that releases 50% of the waste stored here. The probability of such an accident that would release radionuclides is $1x10^{-6}$. Doses and risks from this accident to the population within 80 km (50 mi) of the ATG facility are calculated to be 1.4 person-rem with the number of excess LCFs considering accident probability predicted as $7.0x10^{-10}$.

Socioeconomic Impacts: No additional employees would be required for the 200 West Area operations. Approximately 30 to 50 employees would be added by ATG to operate the treatment facility for all customers' wastes. Therefore, no socioeconomic impacts are expected from the proposed action.

Environmental Justice: Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs and activities on minority and low-income populations. With respect to Executive Order 12898 regarding environmental justice, distributions of minority and low-income population groups have been identified for the Hanford Site. The analysis of the impacts in this EA indicates that the health and environmental impacts from the proposed action in this EA are expected to be minimal. Therefore, it is not expected that there will be any disproportionate impacts to any minority or low-income portion of the community.

Cumulative Impacts: No significant cumulative environmental impacts are expected from implementation of the proposed action.

Impacts from other Alternatives: Though not analyzed in detail, transport of the Hanford LLMW to Idaho or Tennessee sites would be expected to result in a greater risk of transportation accident due to the longer distances and travel times involved. Impacts from treatment were assumed to be similar to those at ATG.

DETERMINATION: Based on the analysis contained in the EA, and after considering the preapproval comments received, I conclude that the proposed action to treat Hanford Site LLMW at an offsite facility does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, an EIS is not required.

Issued at Richland, Washington, this 6th day of May 1999.

Keith A. Klein
Manager
Richland Operations Office